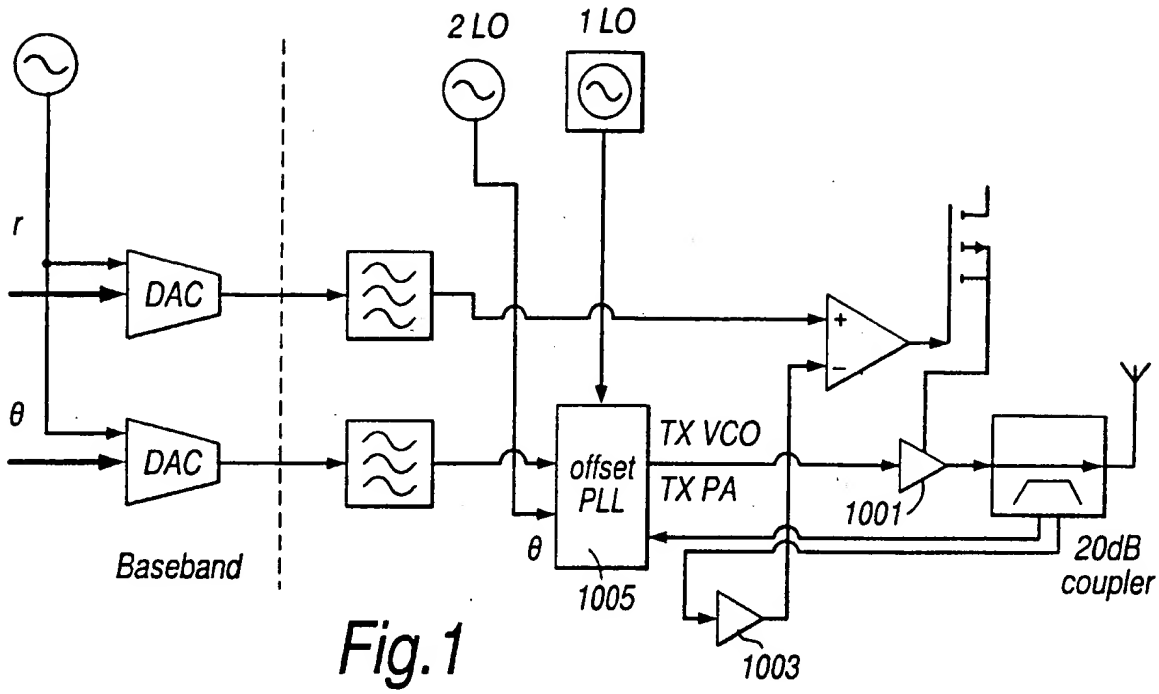
2 LO
1 LO
r
DAC
θ
DAC
Baseband
offset PLL
TX VCO
TX PA
θ
1005
1001
1003
20dB coupler

Fig.1

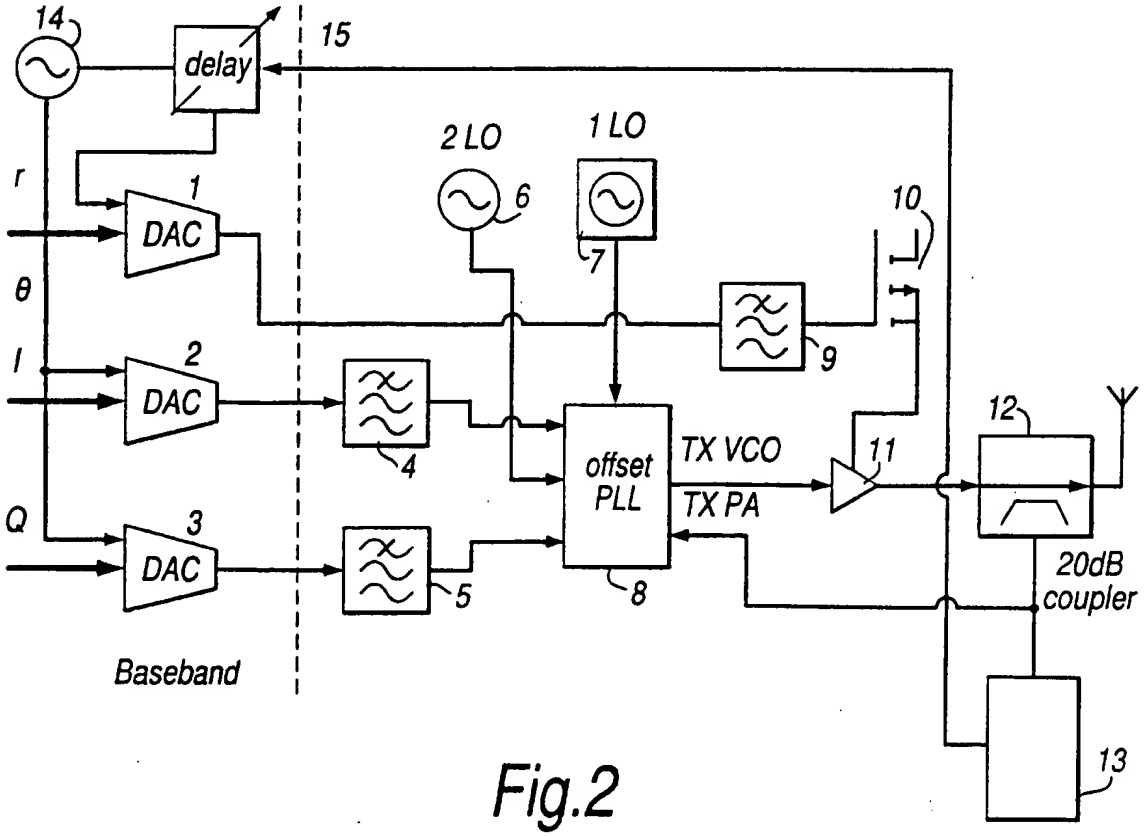
14
delay
15
2 LO
1 LO
6
7
r
1
DAC
θ
I
2
DAC
Q
3
DAC
4
5
offset PLL
8
TX VCO
TX PA
9
10
11
12
20dB coupler
13
Baseband

Fig.2

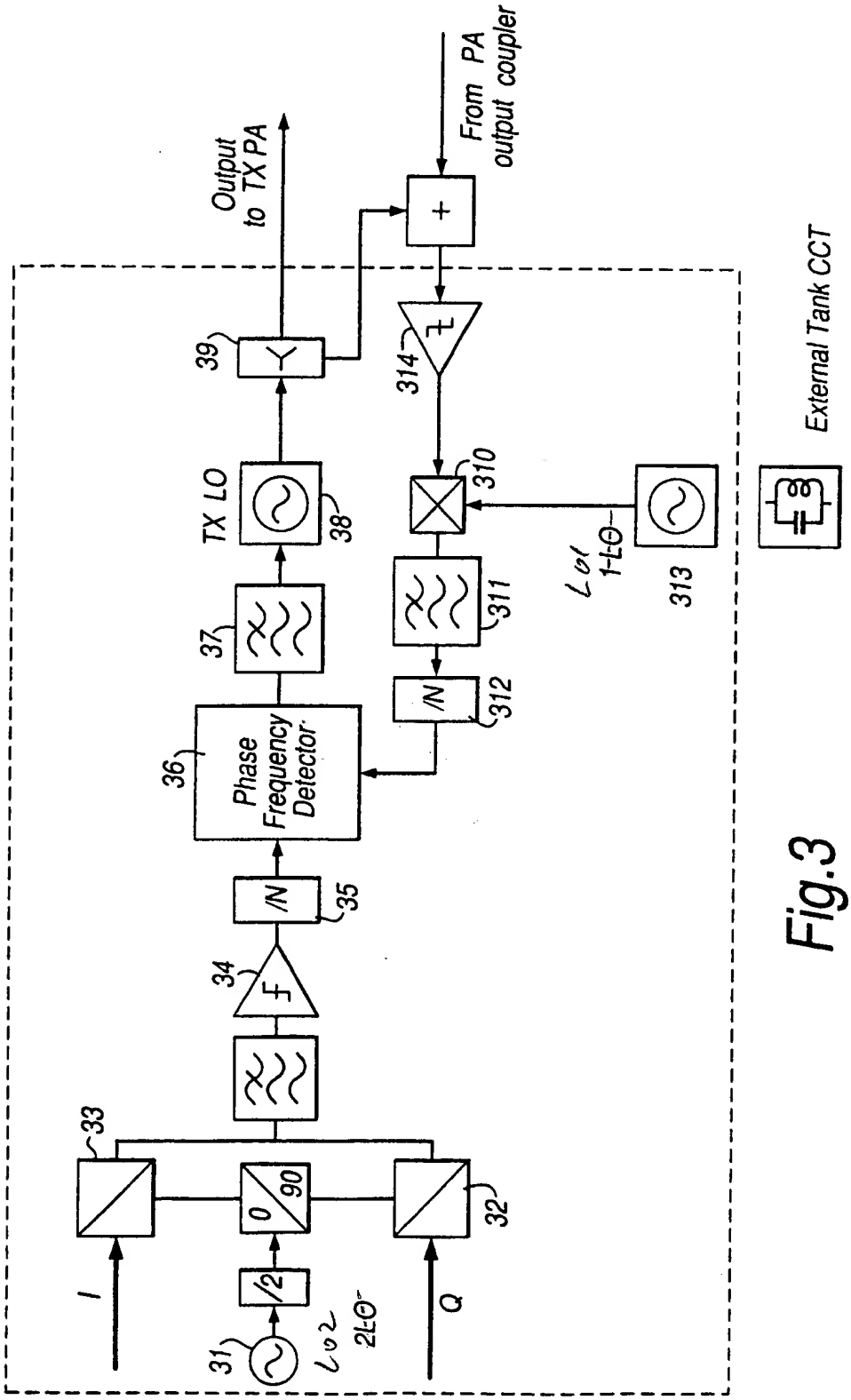
From PA output coupler
Output to TX PA
External Tank CCT
TX LO
LO1 1-LO
LO2 2LO
Phase Frequency Detector
/N
/2
0
90
I
Q
31
32
33
34
35
36
37
38
39
310
311
312
313
314

Fig.3

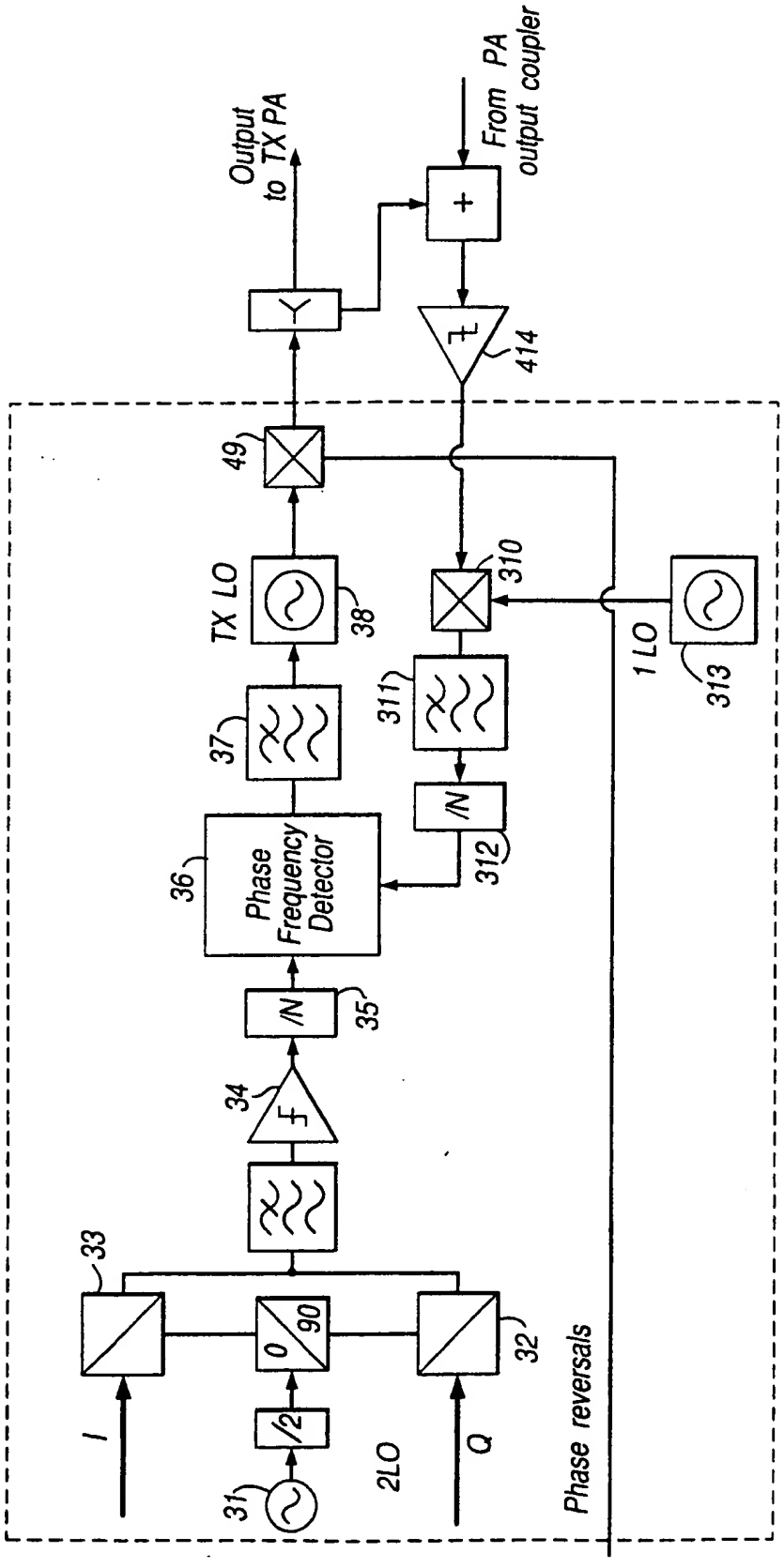
Output to TX PA
From PA output coupler
414
49
TX LO
38
310
311
37
/N
312
36
Phase Frequency Detector
/N
35
34
33
0/90
32
/2
31
2LO
I
Q
Phase reversals
1LO
313
External Tank CCT

Fig.4

4/10

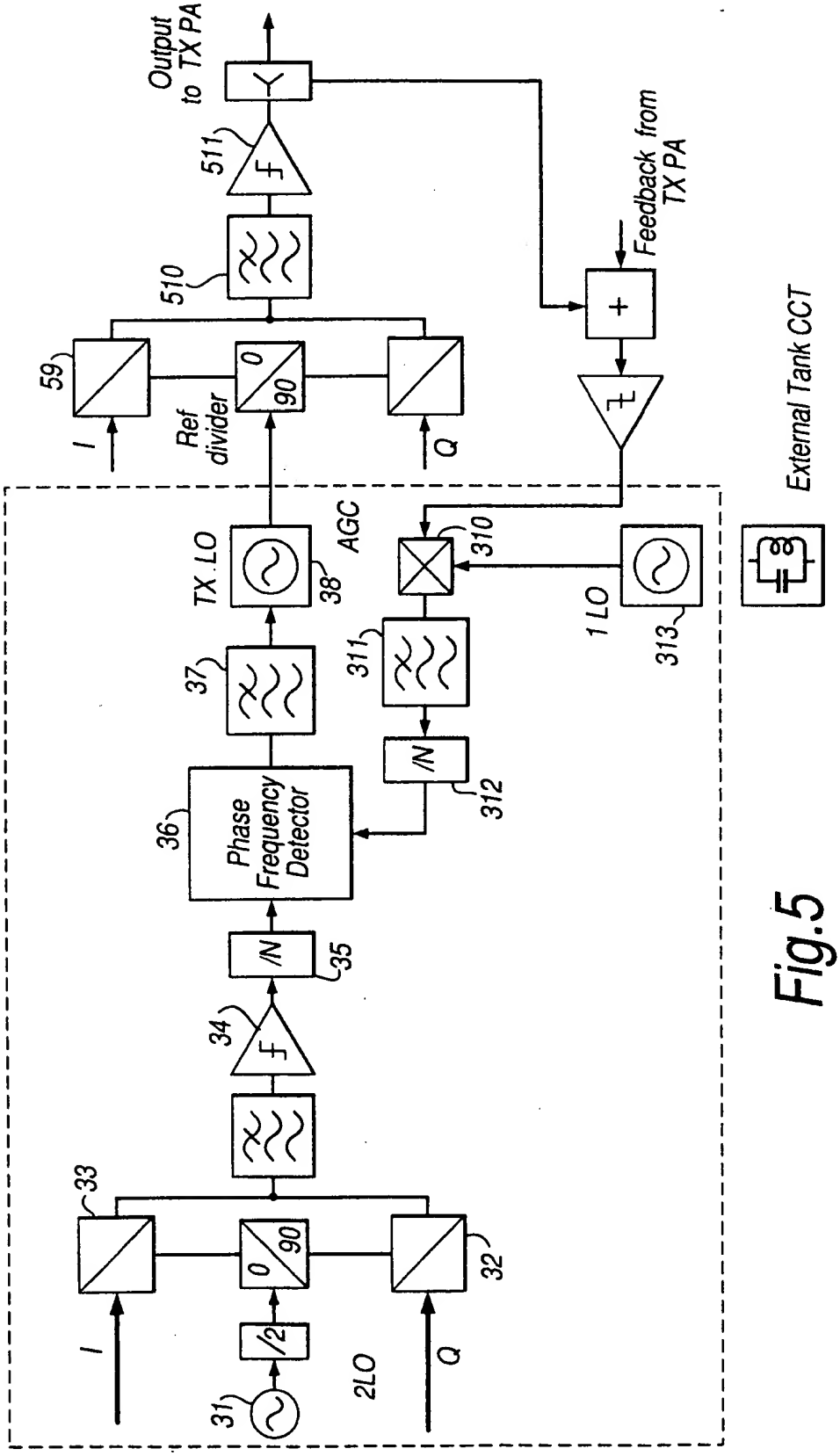
Output to TX PA
511
510
59
I
Ref divider
0
90
Q
Feedback from TX PA
+
External Tank CCT
TX LO
38
AGC
310
1 LO
313
311
37
/N
312
36
Phase Frequency Detector
/N
35
34
33
32
I
/2
31
2LO
Q

Fig.5

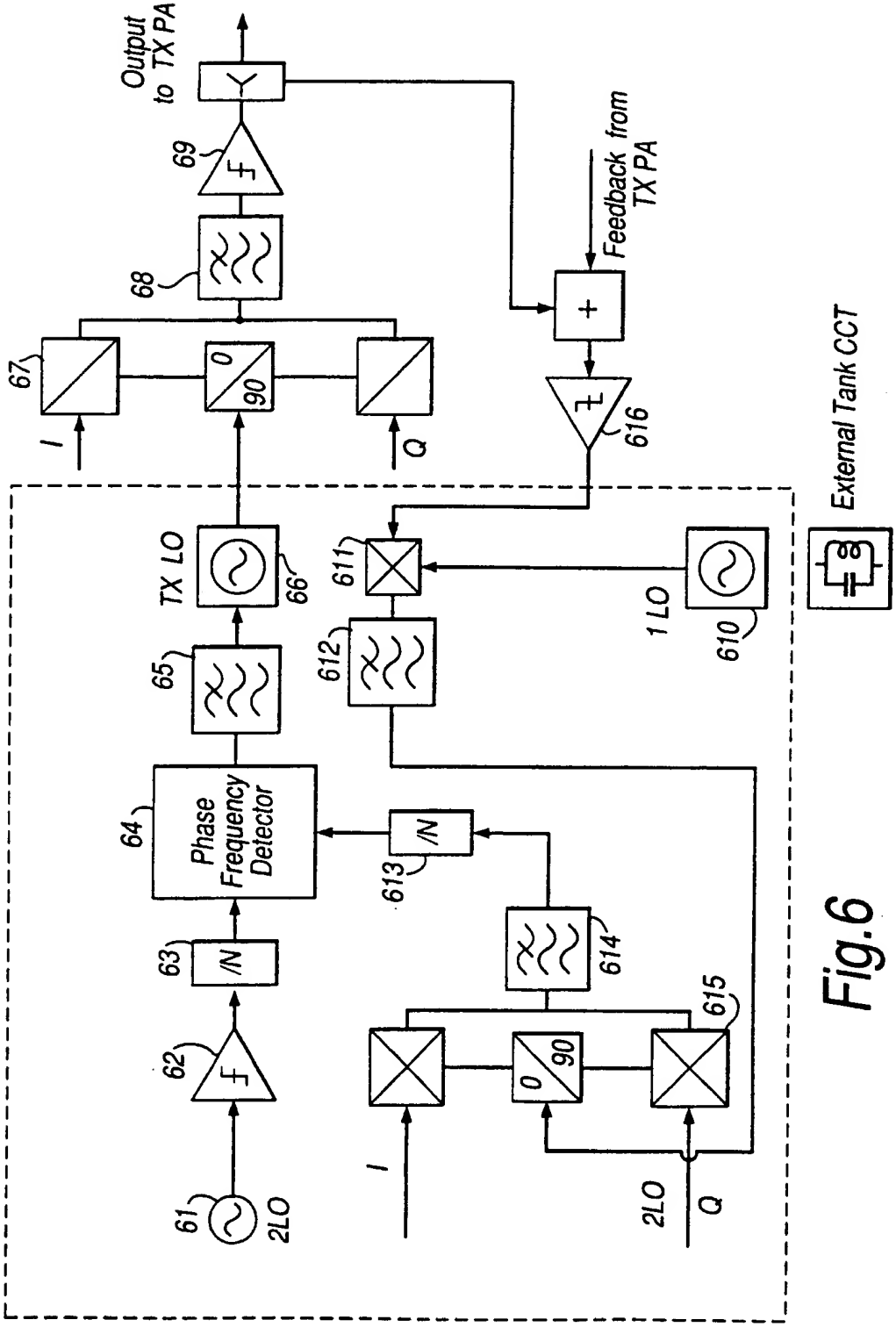
Output to TX PA
69
68
67
I
0
90
Q
Feedback from TX PA
+
616
External Tank CCT
TX LO
66
611
1 LO
610
65
612
64
Phase Frequency Detector
/N
613
614
63
615
62
61
2LO
I
2LO
Q

Fig.6

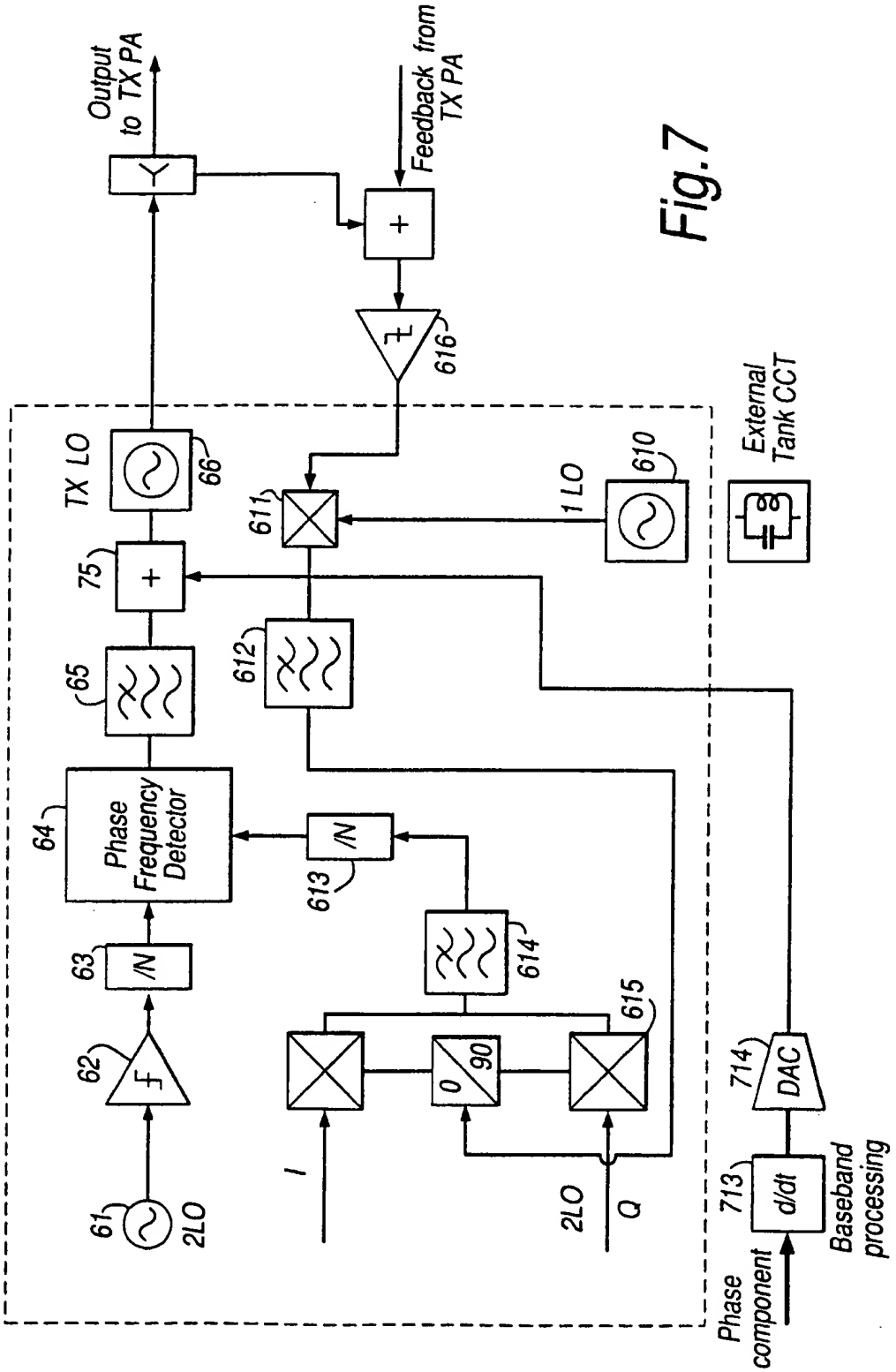
Output to TX PA
Feedback from TX PA
616
TX LO
66
611
1 LO
610
External Tank CCT
75
65
612
64
Phase Frequency Detector
613
/N
614
63
/N
615
62
61
2LO
I
0/90
2LO
Q
714
DAC
713
d/dt
Baseband processing
Phase component

Fig.7

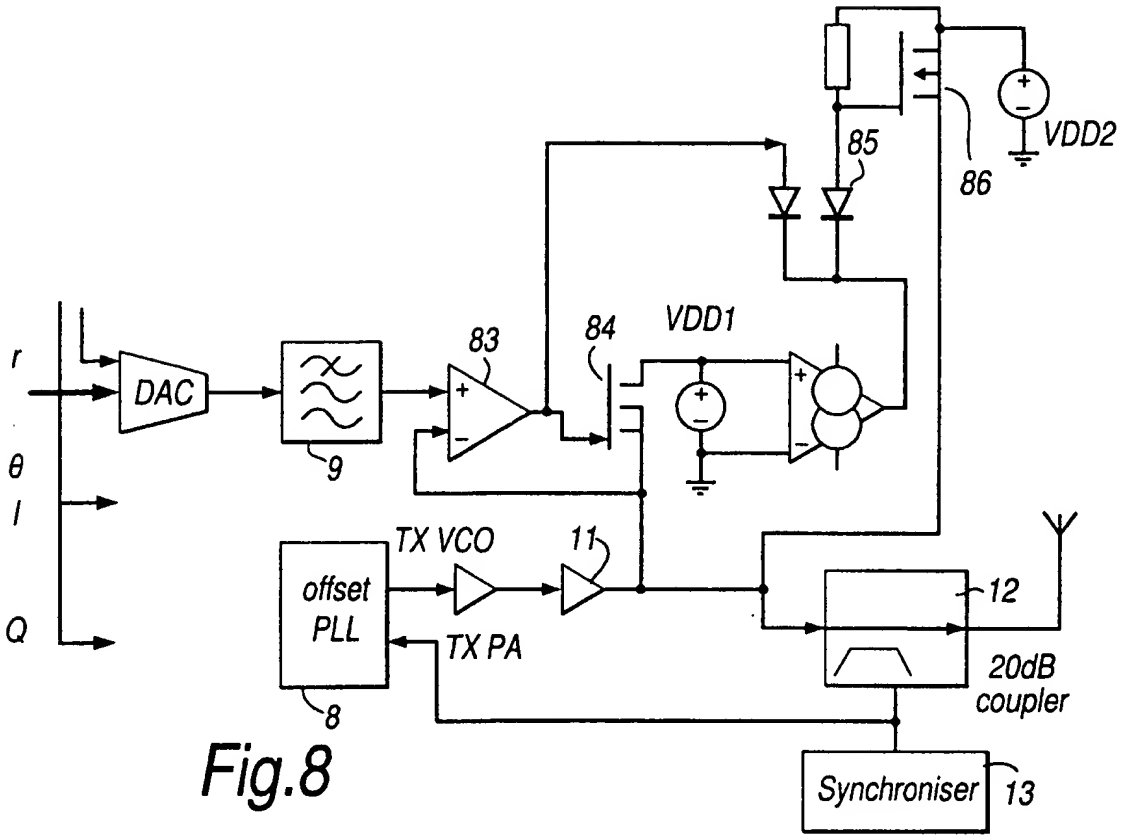
r
θ
I
Q
DAC
9
83
84
VDD1
85
86
VDD2
offset PLL
8
TX VCO
11
TX PA
12
20dB coupler
Synchroniser
13

Fig.8

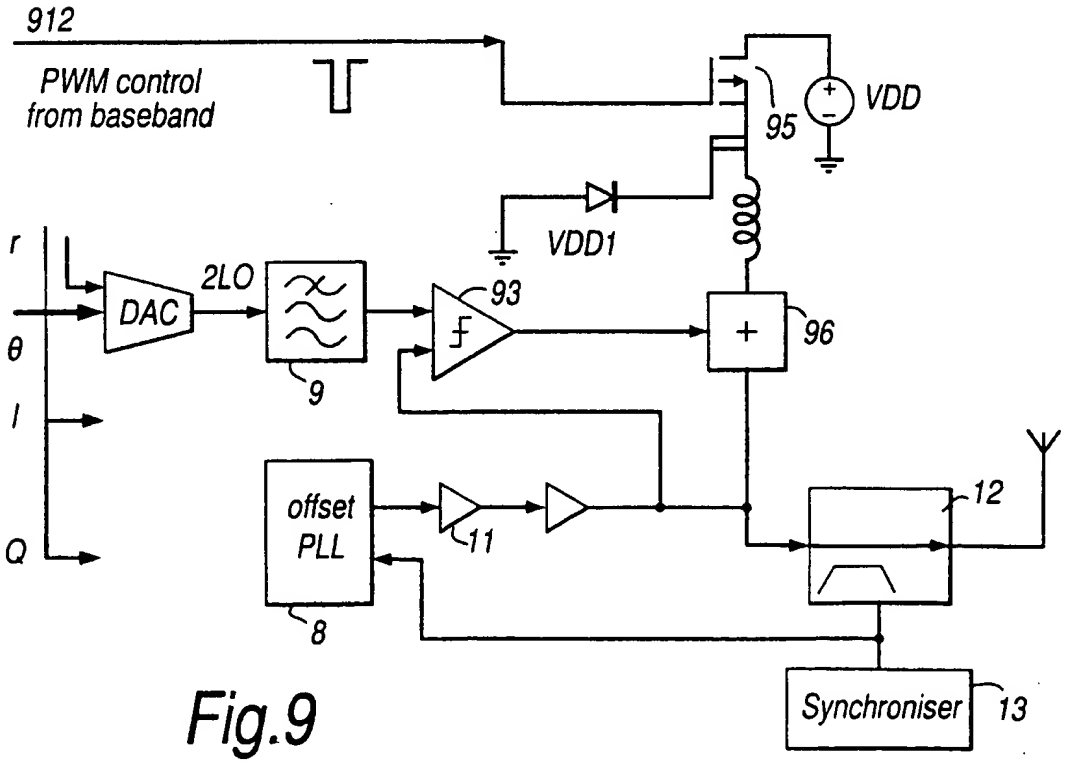
912
PWM control from baseband
95
VDD
VDD1
r
θ
I
Q
DAC
2LO
9
93
96
offset PLL
8
11
12
Synchroniser
13

Fig.9

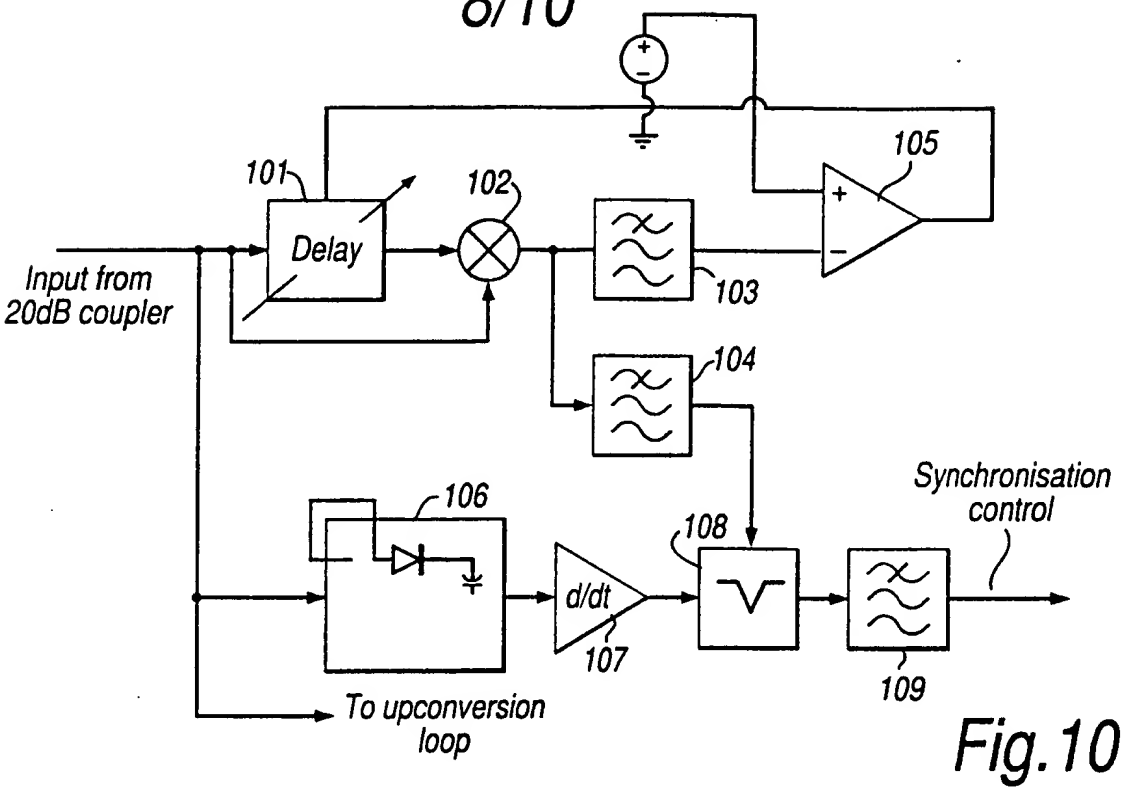
101
Delay
102
105
103
104
Input from
20dB coupler
106
108
Synchronisation
control
d/dt
107
109
To upconversion
loop

Fig.10

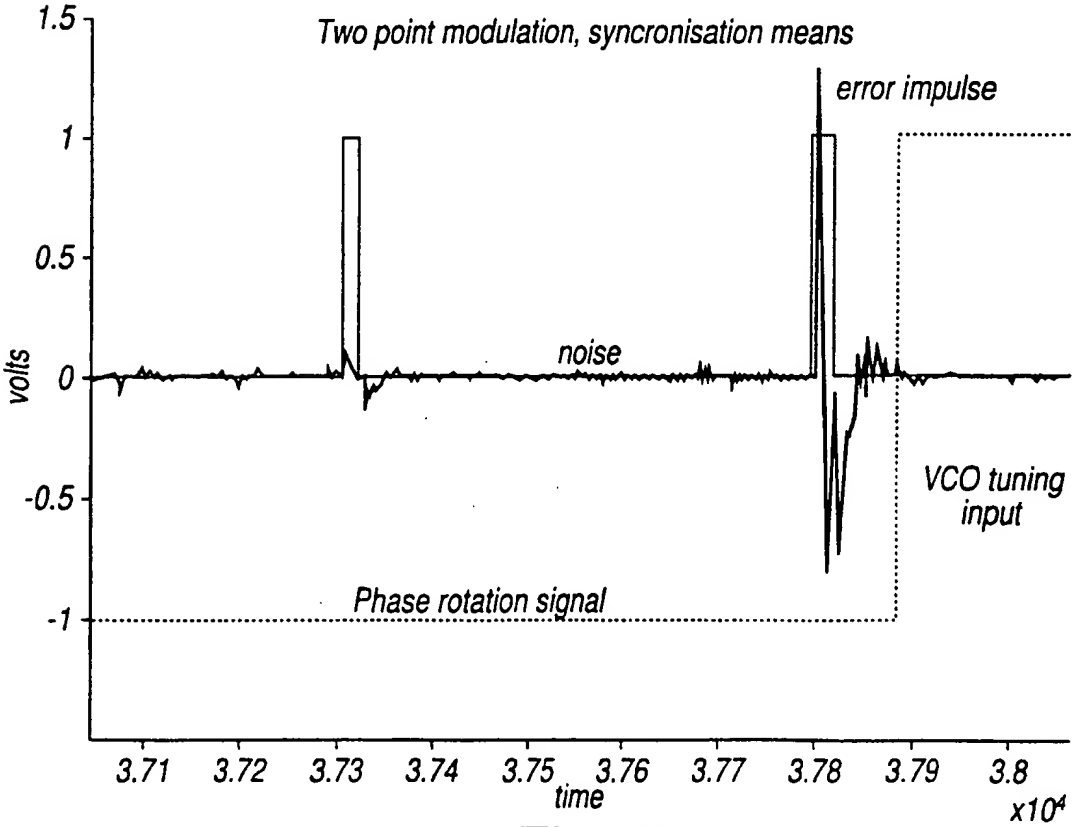
Two point modulation, syncronisation means
error impulse
noise
VCO tuning
input
Phase rotation signal
volts
1.5
1
0.5
0
-0.5
-1
3.71
3.72
3.73
3.74
3.75
3.76
3.77
3.78
3.79
3.8
time
x10^4

Fig.13

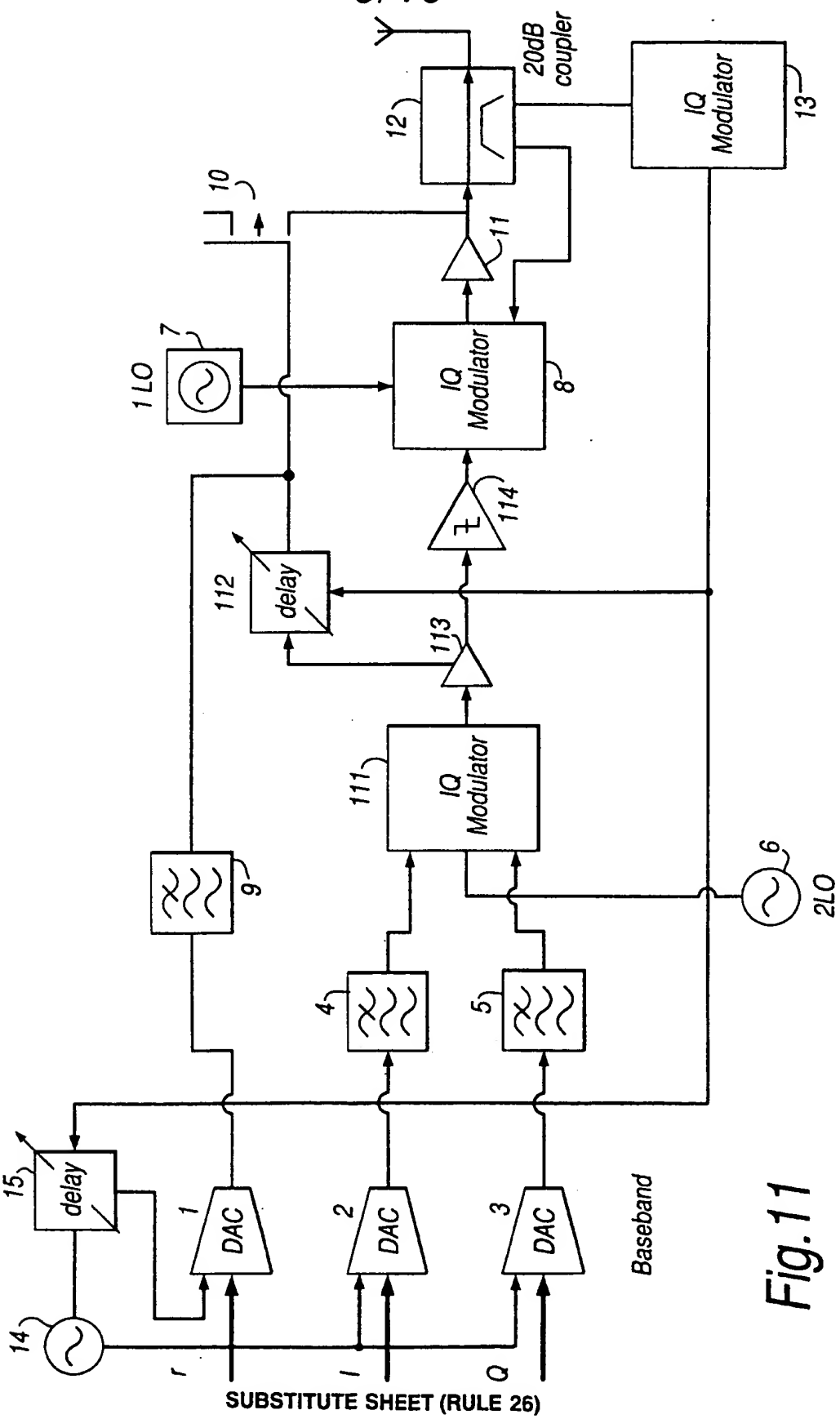

Fig.11

FOREIGN-PCT-09856121

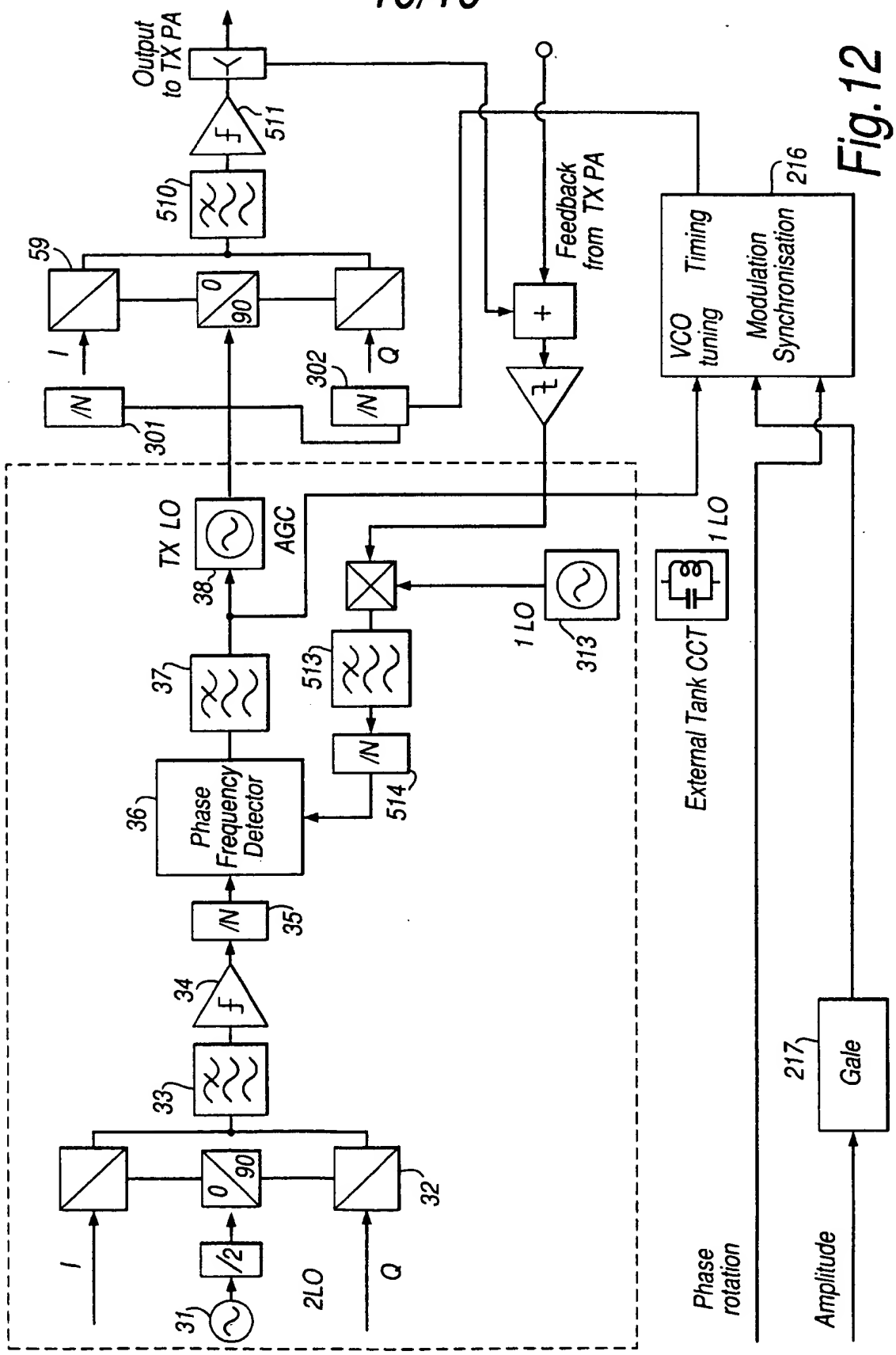

Fig.12

T0T22T:T2T9S860